

REMARKS

The Applicant appreciates the thorough review of the application by the Examiner. Although Applicant disagrees with the rejections of record, solely in the interest of expediting prosecution the claims have been amended. Reconsideration and allowance of the claims as amended are requested.

No new matter has been added by this amendment. By this amendment, Claims 1 and 2 have been amended and new claims 4 and 5 have been added. Claims 1 and 2 have been amended to provide correct antecedent basis and Claim 1 has also been amended for clarity. The invention of Claim 1 is for grinding an item with edges, roundings, and burrs (for example, Page 3, lines 7-10).

Claims 1 - 5 are now pending in the Application, including independent Claim 1.

Claims 1-3 are patentable under 35 U.S.C. 103(a) over Platt (US 1,666,347) in view of Rosa (6,113,472).

I. Rosa is not analogous art and should be withdrawn as a reference.

The examiner states that Platt fails to disclose a grinding motor for each grinding head and thus relies on Rosa as teaching that subject matter. However, Rosa is non-analogous art and cannot render the present invention obvious because it is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned. Rosa should be removed as a reference.

Applicant's field of endeavor is the grinding of items being conveyed that have edges, roundings, and burrs. Rosa is in the field of removing chromium plating from a gravure roller and then polishing it. The technology relating to breaking and polishing of plated rollers is quite

different from the technology of treating sheet-formed items that include edges, roundings and surfaces. Rosa is not in Applicant's field of endeavor.

Rosa is not reasonably pertinent to the particular problem faced by Applicant. The particular problem solved by the present application is the efficient and uniform cross-grinding of conveyed items with edges, roundings, and burrs with minimal consumption of sandpaper, and Rosa has nothing to do with that. Rosa does not, because of the matter with which it deals, logically commend itself to an inventor's attention in considering this problem. See Wang Laboratories Inc. v. Toshiba Corp., 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993). Rosa has nothing to do with grinding of any kind. Rosa deals with the breaking and polishing of plated gravure rollers, in which uniform cross-grinding, edges and burrs, and sandpaper consumption are not a problem. No inventor would ever think to look to Rosa for solutions to problems with uniform cross-grinding of conveyed items with edges, roundings, and burrs. Therefore Rosa could not be analogous art.

Because Rosa is neither in the field of Applicant's endeavor, nor reasonably pertinent to the particular problem with which the applicant was concerned, it is non-analogous art and should be removed as a reference.

At least because Rosa should be removed as a reference and Platt does not teach or suggest each limitation of the claimed invention, the rejection of Claim 1 - 3 under 35 U.S.C. 103(a) over Platt in view of Rosa is improper and should be withdrawn.

II. Rosa and Platt, alone or in combination, do not teach or suggest each and every element of the claimed invention.

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Claim 1 is distinguished from Rosa and Platt at least in that it teaches epicyclic movement of the grinding elements across an item that includes edges, roundings, and burrs. Platt discloses a continuous glass polishing apparatus where:

- there are a number of polishing members (9) each of which is provided with four polishing blocks (12),
- the polishing blocks are moved around in a guide (6) with a chain (14),
- the polishing blocks are rotated by means of sprocket wheels (23) on each polishing member and chain (22),
- chain (14) and chain (22) are driven by the same drive unit via drive shaft (20) and a gearing arrangement (14,15,17,21,24,25,26,27,28 – clearly shown in fig. 4).

This construction of the glass polishing apparatus gives the following disadvantages:

- It is not possible to control the speed of the polishing members (9) in relation to the rotary speed of the polishing blocks (12) which may result in non-uniform polishing of the workpieces (1).

- Along the guide bars 6 the rotary direction of polishing blocks (12) of the subsequent polishing members (9) will always be the same which means that it is not possible to efficiently deburr holes, edges and roundings.
- The structure of the gearing arrangement is technically complex and highly vulnerable to wear.

To achieve a satisfactory grinding and/or deburring of edges and roundings of a workpiece it is important that as many grinding operations as possible are performed, and that each grinding operation is in a direction opposite to the direction of the preceding grinding operation.

As Platt has polishing blocks (12) which all rotate in the same direction during the operation transversely across the workpiece (1), there will not be an efficient grinding/deburring of edges and roundings. If grinding of edges and roundings using Platt is to be performed, the polishing blocks (12) will lay down chips/burrs in one direction during the first operation transversely across the workpiece (1), and during the return operation, chips/burrs will be turned in the opposite direction. Most probably only a small proportion will be ground off the chips/burrs whereby bits of projecting chips/burrs will be left on the edges and roundings of the workpiece.

When the last grinding operation has been effected, there will most likely be grinding marks left in the surface of the workpiece because all the last polishing blocks (12) of the return operation transversely across the item (1) are rotating in the same direction.

In order to achieve an optimum grinding of different workpieces it is important that the polishing members (9) and the rotary speed of the polishing blocks (12) can be adjusted independently of each other in relation to the conveying speed of the workpiece (1) to be

ground/deburred. Thereby it is possible to achieve an optimum grinding/deburring of items (1) having different dimensions without having to adjust the mechanical gearing arrangement and/or to change the conveying speed of the workpieces (1). This is not possible with Platt.

It is difficult to ensure a satisfactory grinding/deburring of the edges/roundings in a hole/recess of a workpiece (1) if all the polishing blocks (12) are rotating in the same direction. Typically only one half of the edges/roundings in a hole/recess will be ground by a transversely directed grinding operation on a workpiece (1), whereas the other half of the edges/roundings in the hole/recess will ground by the return operation. This means that the edges/roundings in the hole/recess will only be ground once which is not enough in order to achieve a satisfactory grinding/deburring.

A more optimum grinding/deburring of the edges/roundings of the workpiece is achieved if each individual polishing block rotates around its own centre instead of having the four polishing blocks rotating around a common point of rotation. There is a higher risk that the four polishing blocks cannot grind uniformly across the entire surface of the workpiece when the joint rotation of the polishing blocks depends on the transverse movement of the polishing members.

Platt (Fig. 1) is furthermore shown as an apparatus where the polishing members extend beyond the support rollers and not along the edge of a glass plate (1). The table 2 is at a height such that the glass 1 to be polished is level with the top surface of the rollers 30 (Fig. 2). Therefore, as seen in Figure 2, the rollers will not contact the side edges of the glass and these side edges will not be sufficiently polished.

As it occurs from the above Platt discloses a technology which is suitable for polishing a flat surface. Platt does not give any teaching of grinding of an item that includes edges, roundings and burrs.

Accordingly, Platt discloses the possibility of a uniform polishing of surfaces without any possibility of deburring of edges and roundings which are part of such item being treated.

Even if the two references were combined, they would not read on the invention of Claim 1 in which there is a process of a plate formed item having burrs, roundings and edges. Rosa is an apparatus for polishing a roller. The polishing effect would not be able to perform the deburring effect which is an object of the present invention and moreover, the technology relating to treatment of rollers is quite different from the technology of treating sheet formed items that include edges, roundings and surfaces. Rosa.

On the contrary the skilled person would have the opinion that the technology taught by Rosa would make it possible to obtain an efficient polishing effect in the line-formed area which extend parallel to the centre axis of the roller. This is quite contrary to the treatment of a sheet formed item and especially the treatment of a sheet formed item having roundings and edges which should be deburred during the grinding process. There is nowhere in Rosa where a skilled person could find teaching for treatment for a surface of an item that includes edges, roundings and surfaces, e.g. as found in table tops and sheet parts which are plain items.

Therefore the references, even in combination, do not teach or suggest epicyclic movement of the grinding elements across an item that includes edges, roundings, and burrs. The references thus do not teach or suggest each and every limitation of Claim 1.

The dependent claims share the elements of independent Claim 1 and add additional patentable features. For example, new Claim 4 adds that the grinding elements are connected to the grinding motors with a movable shaft, whereby items with non-uniform thickness may be ground on the top side face, since the grinding elements will follow the contour of the surface of the item. No reference teaches or suggests this limitation. New Claim 5 adds that one or more grinding

elements rotate in a different direction than one or more other grinding elements. No reference teaches or suggests this critical feature.

At least because Rosa and Platt, taken alone or in combination, do not teach or suggest every limitation of the claimed invention, the rejection of Claim 1 - 3 under 35 U.S.C. 103(a) over Platt in view of Rosa is improper and should be withdrawn.

III. It would not have been obvious to combine Rosa and Platt in the manner suggested by the Examiner.

MPEP §2141 states "the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*... The factual inquiries enunciated by the Court are as follows:

- (A) Ascertaining the differences between the claimed invention and the prior art; and
- (B) Ascertaining the differences between the claimed invention and the prior art; and
- (C) Resolving the level of ordinary skill in the pertinent art."

It is respectfully submitted that the September 14, 2007 Office Action does not produce a *prima facie* case of obviousness at least in that it lacks a resolution of the level of ordinary skill in the pertinent art.

MPEP §2141.02 also states "Ascertaining the differences between the claimed invention and the prior art requires interpreting the claim language... and considering both the invention and the prior art as a whole." MPEP §2141.02 further states "In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious." (Emphasis in original)

It is respectfully submitted that the Office Action of September 14, 2007, does not consider the prior art or references as a whole and does not consider the claimed invention as a whole, without the benefit of impermissible hindsight. Platt teaches a continuous glass polishing or grinding apparatus with a number of polishing members (9), each of which has four polishing blocks (12). Each group of polishing blocks rotates around a common point of rotation. The polishing members are moved around in a guide (6) and the polishing bocks are rotated by means of the same drive unit. Glass passes beneath the polishing blocks on a rolling table so that the glass is level with the top surface of adjacent rollers and supporting structure (Fig. 2, Page 1, ll. 40-50, Page 2, ll. 74-90). The polishing blocks pass over the top surface of the glass and adjacent rollers at a uniform height, all driven by the same drive means.

In contrast, Rosa teaches an apparatus for removing chromium plating from a roller with a metallic shell galvanically covered by a copper layer having a pattern and a protective chromium plating and polishing the roller. The method includes hitting the chromium plating with blunt bodies to break and remove the chromium plating by elastic collapsing of the underlying copper layer. The copper is then smoothed and polished by rotating polishing members that move back and forth as the roller rotates. (Abstract, Figures) When a polishing member hits a spot with stronger resistance, ammeters detect the increased current draw and cause the member to be moved upwards from the surface (Col. 5, line 63 - Col. 6, line 43).

These are two completely different inventions that operate though different mechanisms. Platt teaches the use of a single drive motor and groups of grinding blocks rotating about a central point to polish the top surface of a sliding glass sheet, whereas Rosa teaches battering a roller with blunt objects, deforming the roller, and then smoothing and polishing the roller using polishing members with individual motors while the roller turns. The only similarity is that they

both involve rotating heads. There would have been no motivation or suggestion to one of ordinary skill in the art to modify Platt with any of the teachings of Rosa.

The Examiner argues that "It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the single drive chain (22) which drives all the grinding heads simultaneously, of Platt, with grinding motors that individually drive each grinding head, in view of Rosa, in order to individually maintain constant pressure at different locations thereby removing the surface of the workpiece without causing undesired stress." Applicant respectfully disagrees. This point of view is not found in Rosa. No skilled person would know whether the technology of Rosa would make it possible to remove surface of a sheet formed workpiece without causing undesired stress. This allegation is not sustained in the disclosure of Rosa.

On the contrary the skilled person would have the opinion that the technology taught by Rosa would make it possible to obtain an efficient polishing effect on a roller in the line-formed area which extend parallel to the centre axis of the roller. This is quite contrary to the treatment of a sheet formed item and especially the treatment of a sheet formed item having roundings and edges which should be deburred during the grinding process. Accordingly, there is no reason for the skilled person to make use of Rosa when the skilled person is faced with the problem underlying the present invention. The only possible motivation for such a combination is found in the present Application, the use of which is improper hindsight reconstruction.

MPEP §2141.02 teaches "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention." (Emphasis in original) Platt is for the polishing of sheet glass. The addition of individual motors for each polishing block would have no apparent benefit while causing much greater complexity and

expense. Applicant is uncertain what the Examiner means by suggesting that the chain 22 of Platt be "modified" with grinding motors that individually drive each grinding head. Applicant is uncertain how motors could be added to a chain and does not believe that there would be a reasonable expectation of success in doing so.

If the grinding motors are to be added to the polishing blocks and the chain 22 is to be removed, that would prevent the polishing blocks from rotating around a central point as taught by Platt and would also make the entire elaborate gear structure (Figs. 3 & 4) nonfunctional. It is well established, that if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). See MPEP§ 2143.01(V). How the chain 22 of Platt would be "modified" with grinding motors is not disclosed anywhere and would not be obvious to one of ordinary skill in the art.

Thus when the references are considered as a whole, they do not suggest the desirability and thus the obviousness of making the combination. "[T]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification". In re Fritch, 23 USPQ2d 1783, 1784 (CAFC, August 1992).

At least because none of the references teach or suggest each and every element of the claims, because there is no motivation to combine the references in the manner suggested by the Examiner, and because Rosa is non-analogous and should be removed as a reference, the rejection of the claims under 35 U.S.C. 103(a) is improper and should be withdrawn.

CONCLUSION

Reconsideration and allowance are respectfully requested.

Respectfully,



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